

## Patent Claims

### Method for Producing a Multi-Layer Carbon Brush

- 5 1. Method for producing a multi-layer carbon brush (10) consisting of at least two electrically conductive functional layers (12, 14, 16) made of carbon material and at least one insulating layer (18) made of electrically insulating material, running between successive functional layers, wherein the carbon material or material containing it as filler and the electrically insulating material are added layer-by-layer in powder form in a mold (28) in the sequence corresponding to  
10 the layer sequence of the multi-layer carbon brush (10) to be produced, are then pressed and subsequently heat-treated.
- 15 2. Method pursuant to claim 1, wherein the insulating material is placed in the mold (28) at an appropriate layer thickness so that the insulating layer in the finished multi-layer carbon brush (10) has a thickness  $d$  of preferably  $100\ \mu\text{m} \leq d \leq 500\ \mu\text{m}$ .
- 20 3. Method for producing multi-layer carbon brushes consisting of at least two electrically conductive functional layers (46, 49) made of carbon material and at least one insulating layer (50) made of electrically insulating material, running between successive first functional layers, characterized by the following procedural steps:  
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  - production of a plate (38) by placing layers, which correspond to the multi-layer carbon brush to be produced, of carbon material or carbon-containing material as filler in powder form and electrically insulating material in powder form or in the form of a film into a mold (28) ,
  - pressing of the layers present in the mold to form the plate (38) ,
  - heat treatment of the plate (38), and
  - division of the plate into sizes corresponding to the multi-layer carbon brushes or their final contours.
- 30 4. Method pursuant to claim 3, wherein a synthetic resin powder, organic or inorganic insulating film such as  $\text{Al}_2\text{O}_3$  film, one or more powder resins such as phenol or epoxy resins, tissue film, fiber mat, self-adhesive or adhesive-

activated films or combinations thereof are used as the electrically insulating material.

5. Method pursuant to claim 3, wherein natural graphite, synthetic graphite as well as resin such as phenol resin and/or pitch are used as electrically  
5 conductive starting material for the electrically conductive functional layer.

6. Method pursuant to one of the claims 3-5, wherein about 50% by weight natural graphite and about 50% by weight synthetic graphite as well as about 25% by weight resin such as phenol resin or about 40% by weight pitch are used as the starting material, wherein the resin and/or pitch shall correspond to  
10 100% by weight of the filler in the form of natural graphite and synthetic graphite.